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(54) Title: PRODUCTION OF BARIUM TITANATE COMPOUNDS

(57) Abstract: An ultrafine powder of barium titanate including solid solutions and doped compounds that meets up to specific characteristics is produced by method comprising two main steps. The first step is a reaction, typically in a Segmented Flow Tubular Reactor, between reactants to produce cubic-structure barium titanate composed of non-agglomerated ultrafine particles having a shape of given aspect ratio, usually a generally spherical shape, of low density corresponding at most to 90% of the intrinsic density, all particles being smaller than 1 micron and having a narrow particle size distribution and wherein the ratio of Ba:Ti including substituents and dopants is very close to the ideal stoichiometry. This is followed by subjecting the powder produced in the first step to a second stage solvothermal post treatment typically in an autoclave at temperature less than 400°C to convert the cubic-structure particles of low density to ultrafine tetragonal particles of increased density corresponding to at least 90% of the intrinsic density while maintaining the same aspect ratio, and maintaining the size of all particles below 1 micron, the narrow particle size distribution span, and the given ideal stoichiometry. The produced particles can have a non-spherical faceted shape such as cube-like.

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